[1]黎玉叶,孙双双,邹正渝,等.S100A4上调表达对HBL-100和MCF-7细胞增殖和侵袭的影响[J].第三军医大学学报,2013,35(13):1388-1393.

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S100A4上调表达对HBL-100和MCF-7细胞增

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Title: Effects of S100A4 up-regulation on cell proliferation and invasion of HBL-100 and MCF-7 cell lines

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摘要: 目的 探讨S100A4对人乳腺上皮细胞HBL-100和人乳腺癌细胞MCF-7的增殖、迁移、侵袭和凋亡以及对这两种细胞中的Wnt/β-catenin及Wnt/JNK信号途径的影响。 方法 用表达S100A4的重组腺病毒（AdS100A4）感染细胞，采用MTT、划痕愈合实验、Transwell侵袭实验和Hoechst染色分别检测细胞增殖、迁移、侵袭和凋亡活性的变化；同时通过PCR和Western blot检测S100A4对两种细胞中Wnt/β-catenin及Wnt/JNK信号途径的影响。 结果 （1）HBL-100和MCF-7细胞在第4天的增殖分别增加53.3%和59.1%（$P<0.05$）；24 h的划痕愈合率分别增加73.6%和64.8%（$P<0.05$）；S100A4对HBL-100的穿膜细胞数无明显影响（$P>0.05$），但使MCF-7的穿膜细胞数增加1倍（$P<0.05$）；

HBL-100 和MCF-7细胞在48 h的凋亡率分别减少约30%和36%（*P*<0.05）；（2）感染AdS100A4后的HBL-100和MCF-7细胞中β-catenin较GFP组分别增加49%和55%（*P*<0.05）；尽管两种细胞中t-GSK3β无显著改变，但是其p-GSK3β却较GFP组分别增加73%和55%（*P*<0.05），c-Myc的表达量分别增加38%和30%（*P*<0.05）；（3）S100A4对HBL-100中的t-JNK、p-JNK和c-Fos 的mRNA以及MCF-7细胞的t-JNK的水平均无影响，但是，却致MCF-7中的p-JNK增加39%（*P*<0.05），c-Fos的mRNA增加32.3%（*P*<0.05）。 结论 S100A4可促进HBL-100和MCF-7细胞的增殖、迁移，并抑制这两种细胞的凋亡；增强MCF-7细胞的侵袭能力。S100A4可增强HBL-100和MCF-7细胞中的Wnt/β-catenin信号途径活性以及MCF-7细胞中的Wnt/JNK信号途径活性。

Abstract: Objective To investigate the effects of S100A4 on the proliferation, migration, invasion and apoptosis of HBL-100 and MCF-7 cell lines, and to explore the effects of S100A4 on Wnt/β-catenin signaling pathway and Wnt/JNK signaling pathway in the two cell lines. Methods The recombinant retrovirus that carries human S100A4 gene (AdS100A4) was used to infect HBL-100 and MCF-7 cells, and the retrovirus carrying GFP (AdGFP) was used as control. The effects of S100A4 on the proliferation, migration, invasion and apoptosis of HBL-100 and MCF-7 cells were detected by MTT assay, wound healing assay, Transwell invasion assay and Hoechst staining, respectively. The effects of S100A4 on the activities of Wnt/β-catenin signaling pathway and Wnt/JNK signaling pathway were detected by PCR and Western blotting. Results (1) The activities of cell proliferation were increased by 53.3% and 59.1% at 4 d after infection for HBL-100 and MCF-7 cells, respectively (*P*<0.05), and the wound healing rates were increased by 73.6% and 64.8%, respectively at 24 h after infection (*P*<0.05). Compared with the AdGFP group, the number of transmembrane HBL-100 cells had no significant difference (*P*>0.05), but the number of transmembrane MCF-7 cells was doubled (*P*<0.05). The apoptotic rates of HBL-100 and MCF-7 cells at 48 h after infection were decreased by about 30% and 36%, respectively (*P*<0.05). (2) Compared with the AdGFP group, the β-catenin level in HBL-100 and MCF-7 cells was increased by 49% and 55%, respectively (*P*<0.05), the c-Myc level increased by 38% and 30%, respectively (*P*<0.05), and the p-GSK3β level were increased by 73% and 55%, respectively (*P*<0.05), with no significant change of t-GSK3β level. (3) The mRNA levels of t-JNK, p-JNK and c-Fos in HBL-100 cells as well as the mRNA level of t-JNK in MCF-7 cells did not change after infection (*P*>0.05), but the mRNA levels of p-JNK and c-Fos were increased by 39% and 32.3% in HBL-100 and MCF-7 cells, respectively (*P*<0.05). Conclusion (1) S100A4 can promote cell proliferation and migration, and inhibit apoptosis in

HBL-100 and MCF-7 cell lines. (2) S100A4 can promote invasion of MCF-7 cell lines. (3) S100A4 can enhance the activities of Wnt/β-catenin signaling pathway in HBL-100 and MCF-7 cells as wells as the activity of Wnt/JNK signaling pathway in MCF-7 cells.